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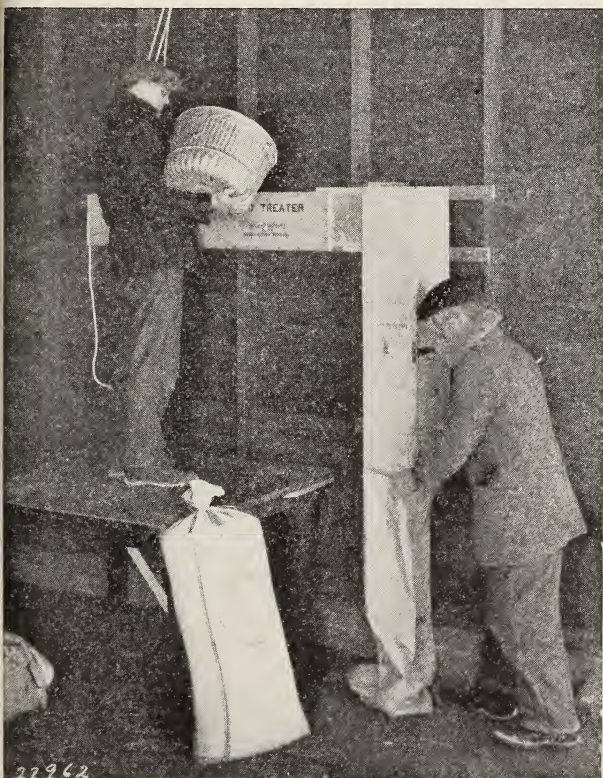
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THE MINNESOTA SEED-GRAIN TREATER¹

A simple, home-made machine for farm use

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¹ Issued by the Division of Cereal Crops and Diseases of the Bureau of Plant Industry and the Extension Service.



EVER since chemical dust disinfectants came into use for treating the seed of small grains and corn to control smuts and certain other diseases, there has been a need for a suitable treating machine to mix the dust with the seed. The right kind of treater must not only do a thorough job but also must be simple and inexpensive to make and easy to use. The plans in this circular will enable anyone handy with tools to make such a treater (fig. 1) in a very short time. The total cost for materials is not likely to run over \$3.50. With this treater two men can treat upwards of 40 bushels of seed an hour.

Materials needed

	Approximate retail price
33 feet of No. 2 pine board, 1 by 10 inches----- (Three 12-foot, four 10-foot, or five 8-foot boards.)	\$1. 75
2 T hinges, 6-inch-----	. 20
2 T hinges, 3-inch-----	. 10
2 gate hooks, 1½-inch-----	. 05
1 pound nails, 2½-inch, box-----	. 05
3 dozen screws, ¾-inch, No. 8-----	. 08
25 feet of sash cord or rope, about ⅜-inch-----	. 37
1 pulley, 2½ to 3 inches-----	. 25
Total cost of materials-----	\$2. 85

In addition, two to four large shelf brackets may be required if the treater is to be set up on a table or a wagon box.

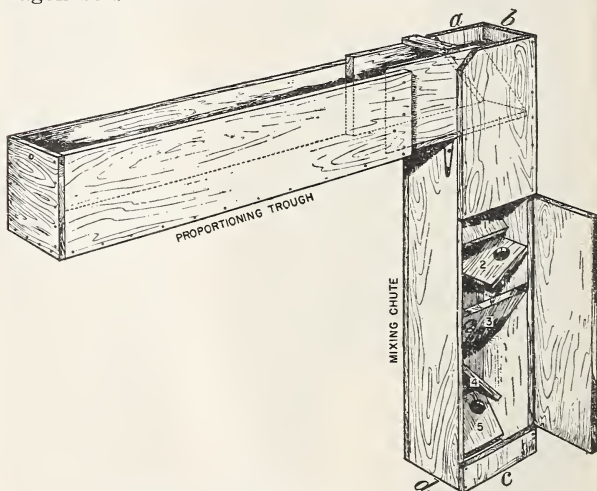


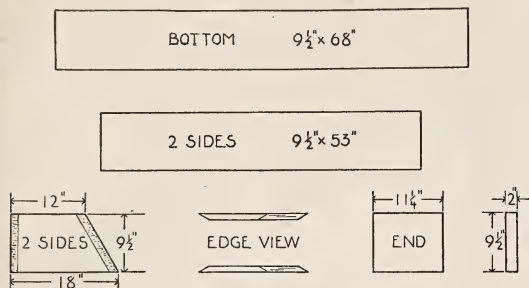
FIGURE 1.—General view of treater

Construction

First, cut all the parts shown in figure 2. All parts are cut from standard 1- by 10-inch boards, planed on both sides and edges, making them actually only about

9½ inches wide. Next nail up the mixing chute in the manner shown in figure 1, leaving the placing of the baffle boards until the last. The clean-out door may be placed on either side. The sides *a* and *c* and the door must overlap the front and back, *b* and *d* (fig. 1).

PROPORTIONING TROUGH



MIXING CHUTE

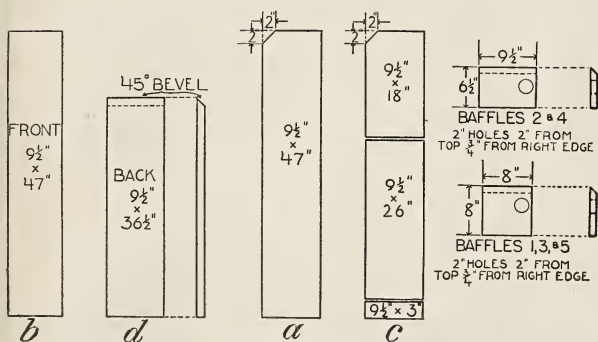


FIGURE 2.—Parts for making treater

Accurate cutting and placing of the baffles is of the very greatest importance. The upper edges of these are beveled to 45°, to fit snugly against the inside of the chute. The grain of the wood should run from top to bottom. A 2-inch hole is bored in each baffle 2 inches from the top of the longer side and three-fourths of an inch from the right-hand edge as one faces the longer side. If a 2-inch auger or a keyhole saw is not at hand, a somewhat smaller square hole (1¾ by 1¾ inches) may be cut with a chisel.

Baffle No. 1 (fig. 1) is placed with its beveled edge against side *a*, 17½ inches from the top of the chute, so that the hole will be under the opening that will be made by raising the trough. Baffle No. 2 is placed against side *b*, 24 inches from the top of the chute; No. 3, against side *c*, 29½ inches from the top; No. 4, against side *d*, 36 inches from the top; and No. 5, against side *a*, 41½

inches from the top. The final arrangement should be such that the grain stream turns to the right as it spirals downward. Part of the stream from baffle 1 should fall through the hole in baffle 2; part of that from baffle 2 should fall through the hole in No. 3, and so on.

When the mixing chute is complete, study the way the proportioning trough will fit into it and how the two will be hinged together (fig. 1). When this is clear, nail up the trough, being careful to overlap the boards as shown. The two long side boards overlap the bottom board, and the two short beveled side boards overlap the longer ones and rest on top of the bottom board. Finally, put the trough and chute together in the position shown, pushing the trough clear into the front of the chute so that no opening is left into the chute unless the trough is raised. Hinge the two together in this position, using the two 6-inch T hinges.

The trough holds $2\frac{1}{2}$ bushels and was designed to treat 2 bushels at a time. If a larger or smaller trough is desired, the required size may be calculated. One bushel contains 2,150 cubic inches. Larger troughs when loaded may be found too heavy for easy handling.

Setting Up The Treater

The treater may be mounted against the wall of the granary or on a table or wagon box. In any case the bottom of the chute should clear the floor by nearly the height of a grain sack, and there must be a table or platform to stand on when filling the trough. The free end of the trough is supported by a rope and pulley hung from the ceiling (fig. 3). In second-floor granaries, cut

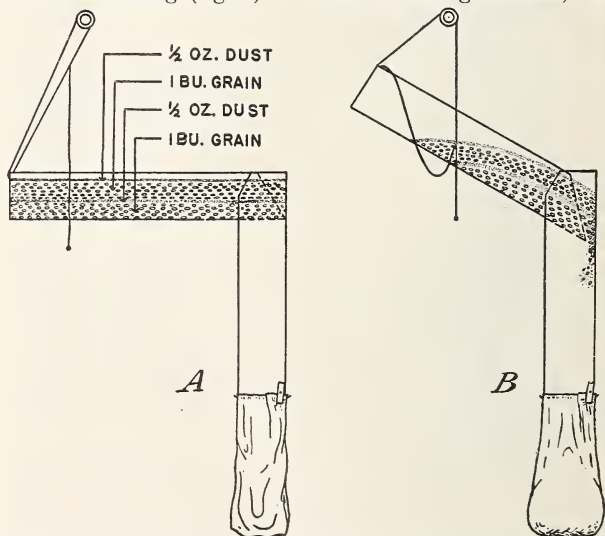


FIGURE 3.—Using the treater: A, Manner of filling trough with seed and spreading the dust; B, dumping seed through mixing chute.

a hole through the floor and make the chute long enough to reach down to the first floor. The trough rests directly on the upstairs floor. If the chute is made longer the baffles should be spaced just the same as they are for the shorter chute, but several more of them may be added, making the treater even more effective.

Operation

To fill the proportioning trough, put in a bushel of grain, spread it out evenly, and over it sprinkle the required amount of disinfectant (fig. 3, A). The dust should be spread evenly over the grain from one end of the trough to the other. It is a good plan to rake the dust into the grain with a short board having wooden pegs or large nails in one edge or to work it in with a stick. Do not put the hands in the dust. Next add the second bushel of grain and a second dose of disinfectant. Three and one-half inches of grain in the trough equals 1 bushel; 7 inches equals 2 bushels. When the trough has been filled in this manner, dump the grain through the chute by raising the free end of the trough (fig. 3, B). Catch the grain in tight bags to keep as much of the dust as possible from getting into the air. To observe the mixing effect of the treater, open the door and hold a pane of glass over the opening while the grain is flowing through the chute.

Disinfectants to Use

This device is designed especially for treating seed grain with the organic mercury dust disinfectants.²

These organic mercury dusts control the seed-borne smuts of wheat, oats, barley, rye, and sorghum, except the loose smut of wheat and the brown loose smut of barley. They control barley stripe, help to control seed decay and seedling blights of all five of these small grains and also corn, and often benefit flax.

The treater was not intended for applying copper carbonate or other copper dusts to seed, as they usually require a somewhat more thorough mixing than do the mercury dusts. Although a fairly good job of treatment with copper carbonate can be done, it is better to apply it with a rotary barrel or box mixer or a commercial machine especially made for that purpose.

Precautions

1. When making this device be absolutely sure to cut and place the baffles correctly.

2. Fill the proportioning trough exactly as directed under the heading "Operation," being sure to apply a separate dose of dust as each bushel of seed is put in. The effectiveness of the treater depends upon these two points.

3. Clean the treater when changing from one variety or crop to another.

4. Use the exact amount of disinfectant recommended by the manufacturer.

² New Improved Ceresan at the rate of one-half ounce to the bushel for wheat, oats, barley, rye, sorghum, and flax; and New Improved Semesan Jr., Merko, or Barbak III, 2 ounces to the bushel for corn.

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5. Do not breathe the dust; most fungicides are more or less poisonous. Work outdoors or in a well-ventilated room—put in another window if necessary. Wear a dust mask if treating much seed.

6. Catch the seed in tight sacks to keep as much of the dust as possible from getting into the air.

7. Wash the hands and face after work and before eating.

SEED TREATMENT IS GOOD CROP INSURANCE

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